

# Socio Economic Importance of Red Mangrove (*Rhizophora Racemosa* L) To Rural Dwellers in Southern Nigeria

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## Abstract

The study investigated the importance of mangrove (*Rhizophora racemosa*) to the socio-economic development of rural dwellers in southern Nigeria. Specifically designed to identify the products made from *Rhizophora racemosa*, examine the costs - returns of the product and ascertain the social benefits derived by artisans engaged in the *Rhizophora racemosa* production. A proportionate sampling technique was employed to select sixty (60) respondents from the study area. Data collected were analyzed using descriptive statistics and budgetary technique. The study revealed that basket (30%), fish racket (33%) and fish trap (20%) were the products made from the plant. Fish racket is one of the products from *R.racemosa* was profitable with a processing efficiency of ₦1.76 which indicates that for every ₦1.00 invested the profit realized was ₦0.76 kobo. The socio benefits from the business include: getting information about their community very fast (81.8%) and deriving satisfaction from the use of the plant (100%). Therefore, the study recommended that government should come up with programmes that will target the youth to get them involved in the utilization of *R.racemosa* as this will help in reducing the unemployment and restive situation in the state.

**Keywords:** Socio-Economic Importance, Mangrove, *Rhizophora racemosa* , Rural Dwellers

## 1.Introduction

*Rhizophora racemosa* a mangrove plant belongs to the family Rhizophoraceae is a mangrove plant. It is regarded as a tree or shrub with stilt roots with pneumatophores' found in West Africa. In Nigeria, particularly in Rivers State it inhabits the mangrove swamps along the edge of the coastal waters and it is an important constituent of mangrove swamp. The plant is distinguishable with branch lets characteristically swollen at the nodes with leaves that are simple, mostly opposite, usually leathery. There are three (3) types of species of the plant represented in West Africa namely: *Rhizophora mangle*; *Rhizophora harrisonii* and *Rhizophora racemosa* being the most commonly found in Nigeria (Keay *et al*, 1989). *Rhizophora racemosa* is a very important tree to rural dwellers particularly those living along the coastal region of the Niger Delta in general and Rivers State in particular-both socially and economically. Rivers State is in the tropical mangrove swamp and rain forest zone of the nation Nigeria. The mangrove swamp belt diminishes from the coast northwards giving way to thick rain forest that has become secondary forest in some places. With a tropical climate and vast areas of arable land, the people of Rivers State have lived up to their traditional agriculture especially fishing and farming.

The ever increasing population and by extension their living standard, rural dwellers tend to use local and natural resources found within their immediate environment to meet their needs, the development of their environment as well as contribute greatly to national economy (Williams, 1993). National food production and supplies come mainly from the rural areas through the efforts of rural dwellers. Rural dwellers therefore supply food and industrial raw materials needed for economic development. According to Ekpo (2004) and Olaniyi (1995) rural inhabitants produce 90 percent of food marketed and consumed in Nigeria and 2.4 percent of exports. Rural dwellers in Rivers State have taken advantage of the *Rhizophora racemosa* in their socio-economic development as it has brought hope to those whose source of income depends on it. It serves the dual role of economic empowerment to those engaged in it through the sale of the raw materials as well as the finished products made from it which helps in enhancing their living standard and promoting social unity. The plant *Rhizophora racemosa* also plays an important role in the ecosystem of the mangrove swamps as it plays host to some marine species such as periwinkle (*Tympanotonue fuscatus*), oysters

(*Crassostrea gasar*), swimming crab (*Ikoli*)(*Callinectes spp*), cockles (*Anadara, senilie*), whelk (*Thais coronata*) and clams (*Tagelus adansornia*) which the rural dwellers trade on.

Fish racket is one of the many local products made from the roots of *Rhizophora racemosa* by local artisans in Rivers State (Georgewill, 1989). The process of its production involves cutting and collection of the plant from the wild. The collected roots are cut into sizes and the back peeled off with a knife and then divided into two or more as desired. It is then sun dried and later moderately at the fire place. After the drying, it is ready for use in making various products example basket, fish trap, fish racket, among others. The root is also used for production and fire wood. The fire wood when used produces charcoal which is an important raw material for the road side food vendors engaged in roasting of plantain, yam and fish. It is therefore, necessary to find out the products made from the *Rhizophora racemosa* plant in the region; what is the cost and return of the product and what is the social benefits of the plant to the rural people.

## 2. Purpose of the study

Specifically the study was designed to:

1. identify the products made from mangrove plant;
2. estimate the cost and return for fish racket: and
3. determine the social benefits of mangrove to the rural people.

## 3. Methodology

The study was carried out in Akuku-toru local government area in Rivers State, Nigeria. Rivers State is one of the states that make up the Niger Delta region. Akuku-toru LGA is made up of Abonnema, Abissa, Idama, Kula, Sangama, Obonnoma, Soku town communities and five 5 fish settlements. Three communities namely: Abissa, Kula and Idama were randomly selected. A proportionate sampling was employed to select sixty (60) *Rhizophora racemosa* artisans from the selected communities – twenty (20) from each of the selected communities. Structured questionnaire and interview schedule were used to collect data from respondents. Data collected were analyzed using descriptive statistics and budgetary technique. A budget is the quantitative expression of total farm plan summarizing income, cost and profit (residue of total cost from total revenue). Gross margin is the difference between TR and TVC (Alimi and Manyony, 2002).

Budgetary technique shows:

$NP = GR - TPC = GM - TFC$ ;

$GM = GR - TVC$ ;

$GR = Q \cdot P$ ;

$TPC = TFC + TVC$

where; GR=Gross Revenue;

GM=Gross Margin;

TR=Total Revenue;

Q=Quantity;

P=Price/unit of output;

NP=Net Profit;

TPC= Total Production cost;

TFC= Total Fixed Cost and

TVC=Total Variable Cost.

## 4. Results and Discussion

### 4.1 Products from *rhizophora racemosa*

The products made from the plant *Rhizophora racemosa* were fish racket (33%) and basket (30%)(Table 1). Fish racket is one of the major instruments used by the rural dwellers in the study area to process and preserve fish. Fish racket keeps the fish in its form as it moves from the rural communities to the cities for sale. The preservation of fish is very important since fish is a perishable commodity (Wekhe & Ochonma, 1994). Fish racket prevent the fish from breakage while basket is an instrument used by rural people in the study area to harvest marine products such as periwinkle (*Tympanotove fnscaatins*), oyster (*Cresostrea gasar*) among others from the river.

**Table 1: Percentage distribution of products made from *Rhizophora racemosa***

Products	Percentage
Basket	30.0
Fish racket	33.0
Fish trap	20.0
Charcoal	10.0
Fire wood	7.0
<b>Total</b>	<b>100.0</b>

#### 4.2 Cost and Returns for fish racket production

From the budgetary analysis in Table 2, the results show that the total revenue (TR) for 100 pieces of fish rackets was ₦12000 while the total variable cost (TVC) was ₦6800. The gross margin was calculated using the production of 100 fish rackets which reveals the total production cost (TPC) incurred to be six thousand eight hundred naira (₦6800). The gross return (GR) for these 100 fish rackets is twelve thousand naira (₦12000). This indicates a profit of ₦5,200 and a ratio of ₦1.76 which means that for every ₦1.00 invested in the production of 100 pieces fish racket the profit realized was 76 kobo. This shows that the business is profitable.

**Table 2: Cost profit analysis for fish racket production**

Quantity(Q)	Cost(₦)
- Raw materials	
The cost of 1 bundle of raw material ngala ( <i>Rhizophora racemosa</i> ) containing 20pieces	- ₦ 5,000.00
- Transport	
Transportation cost to market	- ₦ 8,000.00
- Nunu (Pneumatophore of <i>R. racemosa</i> )	
One bundle containing 10 pieces	- ₦ 1,000.00
<b>Total variable cost</b>	<b>₦ 6,800.00</b>
<b>Total Revenue (TR)</b>	
1 bundle of nunu (Pneumatophore of <i>R. racemosa</i> ) produce and 1 bundle of ngala ( <i>R. racemosa</i> ) produce will produce 1 bundle of fish racket containing 100 pieces	- ₦ 1,200.00
10 bundles of produced fish rackets will cost	- ₦ 12,000.00

Gross Margin(GM): TR – TC

$$= ₦ 12,000 - ₦ 6,800$$

$$= ₦ 5,200$$

$$\text{Processing Efficiency} = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

$$\text{TR} = ₦ 12,000$$

$$\text{TC} = ₦ 6,800$$

$$= \frac{12,000}{6,800}$$

$$= ₦ 1.76$$

#### 4.3 Social Benefits from *Rhizophora Racemosa*

Table 3 shows the social benefits that were derived from the utilization of *Rhizophora Racemosa*. All the respondents (100%) were happy that they are in the business and also derived satisfaction from the use of the plant. A higher percentage (81.8%) of the respondents were getting information about their community faster as a result of the artisans having a common avenue where they assemble to do their work. In order wards, their assembly venue is an efficient means for dissemination of important information in the communities. Also, it serves as a means of relaxation/ recreation which helps to reduce the chances of artisans' farmers being prone to heart attack and other diseases that go with stress in human beings (63.6%). The common venue where artisans assemble to produce the product helps in the relief of respondents pains and worries (69.1%). However, some were not sure of the social benefits they received from the business (61.4%).

**Table3: Social benefits of *R. racemosa* to rural dwellers**

Benefits	Percentage
-Derived satisfaction from the use of the plant	100.0
-Helps to relief pains and worries	69.1
-A means of relaxation/recreation	63.6
-Get information about my community, state and country	81.8
-Happy because I am involved in the plant business	100.0
-Not sure of the social benefits	61.4

Multiple Responses

### 5.Conclusion and Recommendations

Rhizophore *racemosa* is of great importance to the rural people in Rivers State especially the local artisans as it is used to preserve and market fish. Rhizophora *racemosa* enterprise is a profitable business and therefore it should be encouraged. Also, government should come up with a programme that will target the youths in order to get them involved in the utilization of Rhizophora *racemosa* as this will help in reducing the unemployment and restive situation in the rural areas and state.

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